

# **Exhibit 3**

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

In re Global Brokerage, Inc. f/k/a FXCM Inc.  
Securities Litigation

Master File No. 1: 17-cv-00916  
(RA)(BCM)

This Document Relates To: All Actions

REBUTTAL REPORT ON LOSS CAUSATION AND DAMAGES  
BY DR. ADAM WERNER

July 12, 2021

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## I. INTRODUCTION

1. In my report dated January 10, 2020 (“Werner Report”), I examined factors that are generally accepted by courts as indicative of efficiency of the market in which a security trades. Based on my analysis of the factors, I concluded that the common stock of Global Brokerage, Inc., f/k/a FXCM Inc. (“FXCM” or the “Company”) traded in an efficient market during the period from March 15, 2012 through February 6, 2017 (the “Class Period”). I further concluded that FXCM’s 2.25% Convertible Senior Notes due 2018 traded in an efficient market during the period from June 24, 2014 through February 6, 2017 (the “Notes Period”). In addition, I explained that a common damages methodology, consistent with Plaintiffs’ theory of liability, can be applied to compute damages for all investors who purchased FXCM securities during the Class Period or the Notes Period, and I described that methodology.
2. Following my January Report, I submitted a rebuttal report dated July 27, 2020 (“Werner Rebuttal Report”), in which I addressed the arguments and conclusions in the Expert Report of Terrence Hendershott, Ph.D., dated June 12, 2020 (“Hendershott ME Rebuttal Report”), submitted by the Defendants in this matter. The Hendershott ME Rebuttal Report did not take issue with my conclusion that FXCM common stock traded in an efficient market during the Class Period. Rather, the Hendershott ME Rebuttal Report sought to question the efficiency of FXCM’s Notes during the Notes Period and challenge my opinion on whether damages could be calculated on a class-wide basis common to all class members and consistent with Plaintiffs’ theory of liability.
3. Following my July Report, I submitted a report on April 21, 2021, containing my loss causation analyses and conclusions (“Werner LCD Report”). I concluded that the alleged misrepresentations and omissions caused the prices of the FXCM stock and FXCM Notes to be artificially inflated over the course of the Notes Period.<sup>1</sup> FXCM misled the market about the Company’s relationship with its largest market maker, Effex Capital LLC, and FXCM’s purported lack of conflict of interest with customer transactions on its No Dealing Desk (“NDD”) platform.<sup>2</sup> This, in turn, misled market participants about the extent of

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<sup>1</sup> Werner LCD Report, ¶7.

<sup>2</sup> Werner LCD Report, ¶7.

FXCM's exposure to regulatory penalties, the viability and sustainability of its business model, and FXCM's future profitability.<sup>3</sup> The alleged fraud also concealed from the market the inextricable ramifications that would manifest upon a corrective disclosure, all of which in turn caused the prices of FXCM Securities to be artificially inflated.<sup>4</sup> I determined that the alleged misrepresentations and omissions caused the prices of FXCM securities to be artificially inflated over the course of the Class Period, and were the cause of investor losses when the corrective disclosure on February 7, 2017 dissipated the artificial inflation.<sup>5</sup>

4. Subsequently, I was asked by Counsel for the Plaintiffs, The Rosen Law Firm, to consider and evaluate and respond to the arguments and conclusions in the Expert Report Of Terrence Hendershott, Ph.D., dated June 10, 2021 ("Hendershott LCD Rebuttal").<sup>6</sup> The scope of the Hendershott LCD Rebuttal was to "assess the opinions and analysis [in the Werner LCD Report] pertaining to loss causation and damages."<sup>7</sup> Specifically, Dr. Hendershott was asked to "evaluate (1) whether Dr. Werner's analysis reliably demonstrates that Plaintiffs and the Class members suffered losses caused by Defendants' alleged misrepresentations and omissions, and (2) whether Dr. Werner has reliably quantified any damages due to Defendants' alleged misrepresentations and omissions."<sup>8</sup>
5. The documents I reviewed and relied upon in the course of this engagement that are in addition to those cited in my previous reports are listed in Exhibit-2. My credentials and compensation are presented in the January Report. My full vitae including testimony that I have provided since the Werner LCD Report is attached as Exhibit-1 to this report.
6. I understand that as an expert witness in this proceeding my duty in providing my report is to the Court and that this duty overrides any obligation to the parties who have engaged me, from whom I have received instructions or compensation. I confirm that I have complied with this duty.

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<sup>3</sup> Werner LCD Report, ¶7.

<sup>4</sup> Werner LCD Report, ¶7.

<sup>5</sup> Werner LCD Report, ¶9.

<sup>6</sup> I also reviewed the transcript of the Deposition of Terrence Hendershott dated July 15, 2020 ("Hendershott LCD Deposition").

<sup>7</sup> Hendershott LCD Rebuttal, ¶10.

<sup>8</sup> Hendershott LCD Rebuttal, ¶10.

## II. CONCLUSIONS

- (i) Dr. Hendershott does not take issue with my measurement of the residual decline in FXCM's common stock price in response to the corrective disclosure on February 7, 2017. He does not contest that the residual return on this day was highly statistically significant.
- (ii) Dr. Hendershott does not offer any damages model of his own. Nowhere in the Hendershott LCD Rebuttal does he present per share damages suffered by Class Members.
- (iii) Dr. Hendershott's contention that "collateral consequences" are confounding non-fraud related information is baseless, at odds with the economic literature, and ignores the factual record of this case.
- (iv) Dr. Hendershott's opinion that I did not establish the economic materiality of the allegation-related information ignores the evidence I have provided to date and stems from the logically faulty premise that "collateral consequences" are somehow independent of those consequences' causes.
- (v) The inflation ribbon presented in the Werner LCD Report is not only appropriate given the facts and circumstances of this case, but also conservative compared to other alternatives.
- (vi) Even absent a finding of market efficiency, the damages analysis I provided in my Werner LCD Report for the FXCM Notes is informative for investors who may wish to establish reliance individually.

## III. CRITIQUE OF THE HENDERSHOTT REPORT

- 7. As an initial matter, Dr. Hendershott does not contest my conclusion that the market for FXCM common stock was efficient throughout the Class Period. Further, Dr. Hendershott does not take issue with the event study and associated regression analysis I presented for the FXCM common stock. Dr. Hendershott does not contest that on February 7, 2017, FXCM common stock exhibited a residual decline of 68.22%, or \$3.39 per share (on a logarithmic return basis), which is highly statistically significant at greater than the 99.99% confidence level. Notably, Dr. Hendershott performs no regression analysis of his own in his loss causation and damages rebuttal report. Furthermore, Dr. Hendershott offers no damages model that would assist a trier of fact in determining per security damages for the FXCM securities. While Dr. Hendershott raises a variety of concerns and critiques of my damages model, all of which are either baseless or misguided, he offers no solutions to the issues of loss causation and damages.

8. Dr. Hendershott essentially raises the following three primary arguments with respect to the loss causation and damages analysis I performed: 1) I did not control for negative confounding information on the February 7, 2017 corrective disclosure, namely what Dr. Hendershott refers to as “collateral consequences”;<sup>9</sup> 2) I did not “establish[] that the allegedly corrective information, absent the collateral consequences, was value relevant and caused any losses to investors”;<sup>10</sup> and 3) a constant dollar ribbon is inappropriate because FXCM could not have disclosed corrective information at all times during the Class Period and because FXCM’s “financial situation changed over the course of the Class Period.”<sup>11</sup>
9. As I explain herein, none of Dr. Hendershott’s arguments are compelling. As such, the Hendershott LCD Rebuttal offers no reason for me to modify or alter any of my opinions within the Werner LCD Report.

#### **A. Dr. Hendershott’s “Collateral Consequences” Argument Tortures the Factual Record**

10. Dr. Hendershott claims that the information disclosed on February 7, 2017 was not only corrective information, but also contained what he labels “collateral consequences”.<sup>12</sup> Specifically, Dr. Hendershott points to “the regulatory settlement and FXCM’s immediate withdrawal from its U.S. business” as confounding negative information that must be removed from the fraud-related portion of the price decline on February 7, 2017.<sup>13</sup> Importantly, Dr. Hendershott does not contest that what he considers “collateral consequences” did cause the price of FXCM to decline on February 7, 2017.
11. As I summarized in the Werner LCD Report, on February 6, 2017, after the close of trading, the Commodity Futures Trading Commission (“CFTC”) issued a press release and an Order Instituting Proceedings (herein referred to as “CFTC Order”), announcing that “***FXCM engaged in false and misleading solicitations*** of FXCM’s retail foreign exchange (forex) customers ***by concealing its relationship with its most important market maker and by***

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<sup>9</sup> Hendershott LCD Rebuttal, ¶14.

<sup>10</sup> Hendershott LCD Rebuttal, ¶14.

<sup>11</sup> Hendershott LCD Rebuttal, ¶15.

<sup>12</sup> Hendershott LCD Rebuttal, ¶36.

<sup>13</sup> Hendershott LCD Rebuttal, ¶36.

*misrepresenting that its ‘No Dealing Desk’ platform had no conflicts of interest* with its customers.”<sup>14</sup> The CFTC went on the state that “*FXCM also made false statements to National Futures Association staff*, in order to conceal FXCM’s role in the creation of its principal market maker as well as the market maker’s owner’s previous role as an FXCM executive.”<sup>15</sup> The CFTC Order required FXCM to reject any new customer accounts, pay a civil monetary penalty of \$7.0 million, and “to cease and desist from further violations of the Commodity Exchange Act and CFTC Regulations, as charged.”<sup>16</sup> The CFTC Order found that “FXCM had an undisclosed interest in a market maker that consistently ‘won’ the largest share of FXCM’s trading volume,” and that “the market maker would rebate to FXCM approximately 70 percent of its revenue from trading on FXCM’s retail forex platform.”<sup>17</sup> From 2010 through 2014, FXCM received approximately \$77 million from this market maker, which FXCM did not disclose to its customers.<sup>18</sup> That same day, FXCM issued a press release announcing regulatory settlements with both the CFTC and the NFA. The Company also announced that, “pursuant to the settlement agreements, the Company will be withdrawing from business in the United States.”<sup>19</sup>

12. Dr. Hendershott does not contest this mix of information that was disclosed on February 7, 2017. Additionally, he does not contest that both the regulatory settlement and FXCM’s decision to withdraw from doing business in the U.S. were direct ramifications of the CFTC’s finding that FXCM “engaged in false and misleading solicitations of FXCM’s retail foreign exchange (forex) customers by concealing its relationship with its most important

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<sup>14</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017 (emphasis added).

<sup>15</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017 (emphasis added).

<sup>16</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017.

<sup>17</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017.

<sup>18</sup> “Order Instituting Proceedings Pursuant to Sections 6(c) And 6(d) of The Commodity Exchange Act, Making Findings, and Imposing Remedial Sanctions,” CFTC Docket No. 17-09, February 6, 2017.

<sup>19</sup> FXCM Inc., Form 8-K, filed on February 7, 2017.



market maker and by misrepresenting that its ‘No Dealing Desk’ platform had no conflicts of interest with its customers.”<sup>20</sup> Dr. Hendershott also does not take issue with the fact that Plaintiffs have alleged that “During the Class Period, FXCM knowingly misled investors in the Company’s periodic reports filed with the SEC and other public statements by falsely claiming that its customers who transacted on FXCM’s ‘No Dealing Desk’ (‘NDD’) platform would be free from conflicts of interest because FXCM would not be on the other side of the trade or have any financial interest in the trade.”<sup>21</sup> In other words, despite the regulatory settlement disclosures being exactly corrective of the alleged misrepresentations and omissions that caused FXCM to enter into the regulatory settlements and exit from the U.S. by selling its operations in that country, Dr. Hendershott refuses to acknowledge the inextricable nature of these ramifications.

13. Dr. Hendershott’s argument that the regulatory penalties were wholly distinct and separate from the allegation-related corrective information is at odds with the financial literature. Had FXCM disclosed to market participants that it was, and had been, actively deceiving its investors and customers about its business model, market participants would have understood that the Company was engaged in fraud. In turn, the price of FXCM stock would have fallen, both on account of the correction of fraudulent information and the inescapable consequences of engaging in fraud in the first place. That a disclosure of fraud can have a significant negative valuation impact on a company is a generally-accepted principle. As elaborated below by Palmrose [2004], engaging in fraud “can decrease expected earnings because it indicates suboptimal investment and operating policies and it increases the likelihood of costly litigation and regulatory actions, costly management changes, increased costs of internal monitoring, boards and audit committees) and regulatory scrutiny going forward”:

Because fraud means intentional, non-GAAP financial reporting, it indicates a lack of management integrity that we expect to be associated with a more negative stock price reaction, incremental to any other impacts from revising reported results. This may be due to an increase in the discount rate because fraud creates uncertainty about the reliability

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<sup>20</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017.

<sup>21</sup> Complaint, ¶2.

and credibility of management representations, which increases the perceived information asymmetry between management and stockholders. Further, fraud can decrease expected earnings because it indicates suboptimal investment and operating policies and it increases the likelihood of costly litigation and regulatory actions (e.g., Bonner et al., 1998; Palmrose and Scholz, 2004), costly management changes (Feroz et al., 1991), increased costs of internal monitoring (e.g., through changes in control systems, boards and audit committees) and regulatory scrutiny going forward. In turn, these factors can increase the risk associated with equity investments including whether the company will survive.<sup>22</sup>

14. Dr. Hendershott's counterfactual relies on inherently flawed assumptions to arrive at his conclusion that an earlier hypothetical corrective disclosure may not have included the same ramifications. Specifically, Dr. Hendershott's counterfactual necessarily assumes that had the alleged fraud been disclosed earlier:
  - a. The Company would disclose the truth of its business model to a naïve market, such that the market would not realize that such a disclosure necessarily meant that the Company had previously lied;
  - b. Regulatory agencies like the CFTC would not punish the Company's fraudulent representations about its business model; and
  - c. Analysts and investors would have simply accepted the new reality of FXCM's business, with no negative commentary and no changes in their valuations of FXCM's securities.
15. Dr. Hendershott's narrow delineation of the allegations is a flawed mischaracterization, and his ignorance of the ramifications of the fraud and its disclosure defies both logic and economic principles. Ignoring the inextricable ramifications of the fraud and its disclosure fundamentally warps how financial markets work. These flaws render Dr. Hendershott's confounding information arguments and conclusions meaningless. Consistent with the academic literature, what Dr. Hendershott calls "collateral consequences" are actually part and parcel of what was concealed by the alleged fraud, which caused the security prices to be inflated. Losses stemming from these items are dissipation of fraud-induced artificial inflation.

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<sup>22</sup> "Determinants of Market Reactions to Restatement Announcements," by Zoe-Vonna Palmrose, et al., *Journal of Accounting & Economics*, 2004, p. 63.

***i. Dr. Hendershott's Proposed Treatment of "Collateral Consequences" Is Baseless***

16. While Dr. Hendershott dedicates much of his report to the notion that what he calls "collateral consequences" can and should be removed from the measurement of fraud-induced artificial inflation, nowhere does he cite to any authority to support his assertion. Instead, Dr. Hendershott invokes only a combination of what he believes passes for common sense and vague analogies to support his position on the treatment of "collateral consequences" in a damages model. However, even the scant evidence Dr. Hendershott provides falters under scrutiny. For example, Dr. Hendershott offers the analogy of a mining company:

a company telling its investors that it owns a diamond mine worth \$200 million instead of a gold mine with the same value. Had the company provided the corrective information earlier, the value of the company would not have changed, i.e., there is no price inflation, assuming diamond and gold prices stayed the same. However, when a corrective disclosure is released, the stock price could still decline due to concerns over the company's internal controls or management's competence.<sup>23</sup>

17. Dr. Hendershott would have one believe that a company who tells its investors that it had deceived them regarding the primary product it produced would suffer no negative valuation repercussions upon its investors hearing the truth. The studies performed by economists in Karpoff, et al [2008] and Palmrose [2004] found otherwise. In the literature, disclosures of fraud are found to be associated with negative valuation effects and that fraud necessarily precipitates negative ramifications is a well-established concept. Put simply, empirical research has confirmed that shareholders do not take kindly to deception and fraud from management. Dr. Hendershott points to no academic research rebutting these findings. In the real world, shareholders punish companies who commit fraud by selling/exiting their investments.
18. Dr. Hendershott's attempt to divorce the disclosure of fraud from its associated ramifications is not only at odds with the literature, but also basic logic. In the Hendershott LCD Report, Dr. Hendershott makes the claim that because I have not demonstrated that

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<sup>23</sup> Hendershott LCD Rebuttal, ¶44.

the ramifications associated with the corrective disclosure on February 7, 2017 were “foreseeable” and “certain” as of the first day of the Class Period, I cannot include their negative price impact in the measurement of artificial inflation. Dr. Hendershott is attempting to disaggregate market participants’ reactions to the new information (i.e., the corrective disclosure) from the new information in and of itself. This is nonsensical and contrary to the economic literature. Dr. Hendershott does not and cannot deny that it was the fact that FXCM misrepresented and omitted key information from regulators regarding its business model and its relationship with Effex prior to the start of the Class Period that caused regulators to take action against the Company. It is very much foreseeable that when a company deceives regulators in its industry and lies to investors on key issues, regulators would respond negatively. This negative response from regulators is an inescapable repercussion of FXCM’s decision to misrepresent and omit information. Thus, negative regulatory action and associated penalties are very much inextricable ramifications of the fraud.

**B. I Have Demonstrated that the Allegation-Related Information Was Both Valuation-Relevant and Impactful on the Price of FXCM Stock**

19. Building off of his flawed conclusion that there was confounding information disclosed on February 7, 2017 in the form of regulatory repercussions, Dr. Hendershott contends that I have not demonstrated that “the information revealed in February 2017 regarding the Company’s past order flow relationship with Effex or its potential implications for FXCM’s NDD platform” was economically material in and of itself.<sup>24</sup> However, Dr. Hendershott’s argument hinges on an entirely false premise that is designed to lead to a predetermined conclusion. By incorrectly labeling the inextricable ramifications that manifested upon the correction of FXCM’s misrepresentations and omissions as confounding information, Dr. Hendershott has already discarded the very evidence of economical materiality he is requesting.
20. When the truth regarding FXCM’s relationship with Effex and its implications for FXCM’s NDD platform was revealed, it caused FXCM to enter into settlement agreements with U.S. regulators and exit the U.S. market entirely. That these repercussions carried negative

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<sup>24</sup> Hendershott LCD Rebuttal, ¶57.

valuation implications is clear from both the statistical evidence (i.e., the highly statistically significant residual price decline on February 7, 2017) and market commentary:

Yesterday FXCM made an announcement (see below) that led to a 50% decline in FXCM's share price. One component, but in our view by no means the most valuable component, of LUK's investment in FXCM is a 49.9% ownership stake in FXCM and this has of course raised concerns about the valuation of the asset. ... On Feb 6 FXCM announced a \$7M settlement with the CFTC which essentially forced them to sell their US business. The CFTC complaint said FXCM and two of its founding principals made **'false and misleading solicitations by concealing from customers that a chief market maker was rebating roughly 70% of its revenues to FXCM.'** It obviously sounds like a terrible fact pattern.<sup>25</sup>

FXCM announced late yesterday that it had reached agreements with the National Futures Association (NFA) and Commodity Futures Trading Commission (CFTC) settling charges that the company did not disclose to customers that it had an interest in the market maker that traded the largest share of FXCM's trading volume. The CFTC order found that the market maker paid roughly 70% of the revenues generated from FXCM's platform back to FXCM. To be clear, this matter was not in the August complaint from the CFTC. We believe this new settlement resolves this new issue and at least some of the issues that had been part of the original August complaint. ... To settle the charges, FXCM will pay \$7 million to the CFTC and no monetary damages to the NFA. The company will also be shutting down its U.S. business. ... Also, as a financial services company, it is certainly not a good thing for their ongoing foreign operations that they were pretty much forced out of the U.S. and that their debt and equity prices put parent level solvency into question (at least in the market's minds). Solvency was, of course, always a question but now it is a front and center question.<sup>26</sup>

FXCM plans to lay off about 150 workers, or about 18% of its workforce, as it restructures operations following two regulatory settlements that forced it to exit the US market. The foreign-exchange broker, which is selling its US customer accounts to Gain, expects to recognize the bulk of the pre-tax restructuring charges in the March quarter, according to a regulatory filing. Shares drop 54% to \$3.13.<sup>27</sup>

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<sup>25</sup> "FXCM Negative Developments but Likely a Relatively Small Financial Impact on LUK," by Chris Kotowski et al., Oppenheimer, analyst report, February 7, 2017, p. 1 (emphasis added).

<sup>26</sup> "FXCM Settles with Regulators, Plans to Exit U.S. Business," by David Epstein and Patrick Marshall, Cowen and Company, analyst report, February 7, 2017, p. 1.

<sup>27</sup> "FXCM to Lay Off Workers as It Exits US Markets -- Market Talk," *Dow Jones Institutional News*, February 7, 2017.

The Commodity Futures Trading Commission hit Forex Capital Markets, parent company FXCM Holdings and two founding partners with a \$7 million fine over alleged trading misrepresentations. Now FXCM Inc. is pulling out of the U.S., in an exit that will free up almost \$52 million in capital. GAIN Capital Holdings Inc. is acquiring the U.S. client base.<sup>28</sup>

21. Effectively, Dr. Hendershott is separating the content of the corrective disclosure (i.e. the truth regarding FXCM's relationship with Effex, the fact that FXCM was lying to regulators and investors, and the implications of these facts on FXCM's representations regarding the its business model) from the valuation impact of the corrective disclosure (i.e. regulatory penalties and drastic changes in business operations) and then asking for the valuation impact of the corrective disclosure while ignore the existing evidence. Dr. Hendershott accepts that what he refers to as "collateral consequences" caused the price of FXCM stock to decline. As these developments were ramifications of the fraud, were caused by the fraud, and served to inform the marketplace about the severity and economic implications of the fraud, Dr. Hendershott's own analysis, therefore, attributes FXCM stock price declines to the alleged fraud.
22. Only by incorrectly defining concealment of misconduct as outside Plaintiffs' allegations, and only by incorrectly disregarding the inextricable ramifications of the fraud and its disclosure can Dr. Hendershott entertain the possibility that the alleged fraud did not cause investor losses. As explained in the Werner LCD Report, my analysis proved empirically that the alleged misrepresentations, omissions, and deceptive conduct caused the price of FXCM stock to be artificially inflated, and that the corrective disclosure and its inextricable ramifications dissipated the artificial inflation, thereby causing investor losses. My analysis considered confounding information, but properly treated inextricable ramifications as allegation-related. Concealment of the fraud served to forestall and hide these ramifications, therefore those losses were indeed dissipation of fraud-induced inflation. As his own analysis recognizes that these factors caused loss, Dr. Hendershott's economic analysis supports my measurement of inflation and damages.

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<sup>28</sup> "FXCM Exits US Biz; Citi, JPMorgan Gain China Interbank Bond Market Licenses," by Nicole De Dios, *SNL Financial Extra*, February 7, 2017.

**C. A Constant Dollar Ribbon is Conservative Relative to Either a Percentage-Based Ribbon or a Time-Varying Ribbon**

23. Dr. Hendershott takes issue with my application of a constant dollar ribbon to measure the artificial inflation in FXCM stock during the Class Period. Specifically, Dr. Hendershott states that: a) my “conclusion that the constant dollar approach is relatively conservative compared to an invalid approach [i.e., the constant percentage approach] is not instructive”;<sup>29</sup> and b) “Dr. Werner does not provide any support that would suggest that his constant dollar approach is conservative relative to an alternative approach that accounts for time-varying inflation.”<sup>30</sup> I address Dr. Hendershott’s concerns in turn.
24. In the Werner LCD Report, I explained that the design of the inflation ribbon can either be dollar-based or percent-based. For a dollar-based inflation ribbon, the dollar declines elicited by a corrective disclosure are determined to measure the dollar value of the disclosed information, which, *ceteris paribus*, represents the dollar value of the same information at other times during the Class Period. For a percent-based inflation ribbon, the percent dollar decline elicited by the corrective disclosure is determined to measure the percent effect on the security price of the same information at other points during the Class Period, *ceteris paribus*. If the security price trends downward over the course of the Class Period, then a constant percentage loss translates into bigger dollar losses when the constant percentage is multiplied against the earlier higher security prices.
25. I also explained in the Werner LCD Report that, for a number of reasons, a stable dollar-based ribbon is the more conservative inflation ribbon design in the instant case. The FXCM Securities’ prices generally did trend downward over the course of the Class Period. The percentage declines on these lower stock prices would translate into dollar declines that are larger when applied to earlier higher security prices than were the actual dollar declines following corrective disclosure. Empirically observed declines elicited by disclosure at the end of the Class Period would therefore have had a bigger effect if the disclosure had occurred earlier. Estimating earlier valuation effects with the empirically observed dollar declines is therefore a conservative treatment.

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<sup>29</sup> Hendershott LCD Rebuttal, ¶97.

<sup>30</sup> Hendershott LCD Rebuttal, ¶97.



***i. A Percentage-Based Inflation Ribbon Is an Instructive Comparison***

26. As shown in Exhibit-3, even before the February 7, 2017 corrective disclosure analysts' price targets for FXCM had fallen dramatically since the start of the Class Period. At the start of and early in the Class Period, analysts' average price targets were substantially greater than they were when the corrective disclosure was made. Full disclosure at the start of the Class Period would have caused analysts and investors to downwardly revise earnings and cash flow estimates, and these decreases would have been applied to the larger valuation multiples in place at that time, resulting in greater stock price declines than ultimately occurred.
27. Moreover, FXCM's stock price was substantially greater at the start of the Class Period than it was later in the Class Period, indicating that percentage reductions in performance would have had greater dollar impacts at that time. I conservatively used a dollar inflation ribbon rather than a percentage inflation ribbon in this case. However, business model changes (i.e., a principal model vs. an agency model) impact earnings and cash flow on a proportional basis. Thus, a percentage-based inflation ribbon is reasonable. Whatever earnings and cash flow might have been, corrective disclosure earlier could have reduced earnings and cash flow by a set percentage amount. The truth about sustainability of FXCM's entire business model would have diminished the price of the stock by a percentage of the inflated value.

***ii. A Time-Varying Inflation Ribbon As Proposed By Dr. Hendershott Is Inconsistent With Plaintiff's Allegations***

28. Dr. Hendershott speculates that "the value implications of a but-for disclosure in this case are likely to have changed over time, particularly with respect to the FXCM Notes"<sup>31</sup> based on his claims that I "performed no analysis to demonstrate that FXCM's alleged misrepresentations and omissions about its order flow relationship with Effex inflated FXCM's security price, let alone that the inflation remained constant throughout the Class Period"<sup>32</sup> and "Dr. Werner has not provided any evidence that the market's assessment of

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<sup>31</sup> Hendershott LCD Rebuttal, ¶103.

<sup>32</sup> Hendershott LCD Rebuttal, ¶104.



the value implications of a but-for disclosure would be the same throughout the Class Period as it related to collateral consequences.”<sup>33</sup>

29. Putting aside the fact that any but-for disclosure and its associated ramifications would have much greater valuation impact on FXCM’s security price as of the start of the Class Period on account of the Company’s much higher market capitalization and valuation,<sup>34</sup> Dr. Hendershott’s assertion of time-varying inflation is at odds with Plaintiff’s allegations. Plaintiffs allege that *even prior to the start of the Class Period* FXCM was lying to market participants and regulators about its business. For example, Plaintiffs allege that:

- a. “In 2009, Defendants Niv, Ahdout and others at FXCM devised a plan to take advantage of FXCM’s NDD clients through the use of a high frequency trading algorithm.”<sup>35</sup>
- b. “In 2009, FXCM hired John Dittami (‘Dittami’), a high frequency trader, to develop a trading algorithm to replace or supplant many of the independent market makers on FXCM’s NDD platform, secretly trading against FXCM’s customers.”<sup>36</sup>
- c. “Leading up to FXCM’s initial public offering in 2010, FXCM’s compliance department recognized that this trading algorithm directly contravened FXCM’s ‘conflict-free’ agency model. In light of these concerns, FXCM was forced to restructure its relationship with Dittami. Together with Dittami, FXCM created Effex as a separate stand-alone company to operate the new algorithmic trading system in order to conceal FXCM’s economic interest in Effex from customers, regulators and investors.”<sup>37</sup>
- d. “To further create the false impression of an independent entity, FXCM and Effex entered into a services agreement, whereby FXCM sent Effex monthly invoices for ‘order flow,’ which were to be paid by Effex to FXCM Holdings, a holding

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<sup>33</sup> Hendershott LCD Rebuttal, ¶105.

<sup>34</sup> During his deposition, Dr. Hendershott appeared to agree with this fact when discussing changes in the equity cushion for FXCM notes during the Class Period, stating that the equity cushion was higher earlier in the Class Period: “... the equity cushion, wasn’t that high and had been much higher earlier ...” (Hendershott LCD Deposition, at 132:3-5).

<sup>35</sup> Complaint, ¶49.

<sup>36</sup> Complaint, ¶7.

<sup>37</sup> Complaint, ¶8.

company owned by FXCM which in turn owned FXCM's U.S. subsidiary. Through August 2011, Effex paid \$21 per million notional volume transacted by Effex on the FXCM retail forex platform.”<sup>38</sup>

- e. “This undisclosed arrangement was very lucrative for FXCM, as FXCM earned 70% of Effex’s trading profits. Effex’s payments to FXCM were disguised as “order flow” payments, which no other market maker was making to FXCM. These kickbacks amounted to nearly \$80 million between 2010 and 2014.”<sup>39</sup>

30. Assuming that Plaintiff’s allegations will be proven true, which is a generally accepted practice in loss causation and damages analyses,<sup>40</sup> these facts would establish that the price of FXCM securities was possibly inflated prior to the start of the Class Period. Further, that the substance of these pre-Class Period conditions so closely mirrored the information disclosed on February 7, 2017 supports a damages model using a constant inflation ribbon. Consider Plaintiffs’ allegations of the pre-Class Period condition at FXCM juxtaposed with the disclosure at the end of the Class Period. In the pre-Class Period, the Company’s relationship with Effex was already established, the alleged scheme was already underway, and the true nature of this relationship was being kept hidden from market participants and regulators. Then, at the end of the Class Period, the CFTC levied its judgement against FXCM precisely because “FXCM engaged in false and misleading solicitations of FXCM’s retail foreign exchange (forex) customers by concealing its relationship with its most important market maker and by misrepresenting that its ‘No Dealing Desk’ platform had no conflicts of interest with its customers.”<sup>41</sup> Though a mirrored disclosure is not necessary to establish loss causation, that the substance of what Plaintiffs allege was misrepresented and

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<sup>38</sup> Complaint, ¶61.

<sup>39</sup> Complaint, ¶11.

<sup>40</sup> See, e.g., “Reference Guide on Estimation of Economic Damages,” by Mark Allen et al., Reference Manual on Scientific Evidence, 3rd Edition, 2011, p. 432 (“In almost all cases, the damages expert proceeds on the hypothesis that the defendant committed the harmful act and that the act was unlawful”).

<sup>41</sup> “CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017.

omitted so closely mirrors the language of the ultimate corrective disclosure strongly supports the application of a constant inflation ribbon to the facts of this particular case.<sup>42</sup>

***iii. A Time-Varying Inflation Ribbon, If Applicable, Would be Less Conservative Than A Constant Dollar Ribbon***

31. Dr. Hendershott speculates that “inflation, if any, is likely to have been time varying” and contends that “Dr. Werner does not provide any support that would suggest that his constant dollar approach is conservative relative to an alternative approach that accounts for time-varying inflation.”<sup>43</sup> Dr. Hendershott then points to events throughout the Class Period that could have caused inflation to vary by putting downward pressure on the Company’s stock price including the disclosure in the Company’s Form 10-K relating to the cessation of the Effex order flow payments in August 2014 and the Swiss National Bank (“SNB”) Flash Crash in January 2015. In his assessment, Dr. Hendershott is correct that these events impacted the Company’s stock price during the Class Period, however his assessment neglects to mention that these incidents are negative in nature, and put downward pressure on the Company’s stock price. Had the February 7, 2017 Company disclosure been made earlier in the Class Period, when FXCM’s stock price was trading at a higher price, its impact would likely have been even greater when using a time-varying inflation ribbon. Consequently, the constant dollar ribbon is a conservative approach to measuring the inflation ribbon.

**D. Damages Can be Calculated for the FXCM Notes**

32. I understand that on March 18, 2021 the Honorable Barbara Moses, the magistrate judge in this matter, issued a “Report and Recommendation to the Honorable Ronnie Abrams”, which proposed that class certification should be granted to purchasers of FXCM common stock during the Class Period and be denied for purchasers of FXCM Notes during the Notes

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<sup>42</sup> Notably, the CFTC also found that FXCM was engaged in the fraud since at least 2009: “From September 4, 2009 through at least 2017, FXCM and FXCM holdings, by and through their officers, employees, and agents, including Respondents Niv and Ahdout, engaged in false and misleading solicitations of FXCM’s retail foreign exchange customers.” (“CFTC Orders Forex Capital Markets, LLC (FXCM), Its Parent Company, FXCM Holdings, LLC and FXCM’s Founding Partners, Dror Niv and William Ahdout, to Pay a \$7 Million Penalty for FXCM’s Defrauding of Retail Forex Customers,” *U.S. Commodity Futures Trading Commission*, press release, February 6, 2017.)

<sup>43</sup> Hendershott LCD Rebuttal, ¶98.

Period.<sup>44</sup> I also understand that based on this recommendation, Dr. Hendershott has opined that “Dr. Werner cannot use an event study to draw a cause and effect conclusion between the revelation of the allegedly corrective information and the FXCM Notes price reaction absent assuming (or establishing) that the FXCM Notes traded in an efficient market.”<sup>45</sup> While I respect Judge Moses’ findings, Dr. Hendershott’s interpretation of the implications of such findings is a severe overreach.

33. Dr. Hendershott appears to conflate the lack of an efficient market finding with a finding that the market was inefficient. To be clear, Dr. Hendershott has offered no opinion that the market for the FXCM Notes was inefficient nor is he offering such an opinion now. Given that market inefficiency has not been established, there is no basis to claim that an event study on the FXCM Notes cannot measure per note damages for FXCM Note investors. After all, the event study still properly removes market and sector effects from the returns of the FXCM Notes, thereby isolating the impact of Company-specific information. Though I am not a lawyer, it is my understanding that the question of class certification is used by courts as a proxy for the legal requirement of reliance. If class certification is not established, then reasonably, a damaged investor in the FXCM Notes can still demonstrate reliance for him/herself, i.e., individual reliance. In such cases, the event study and damages model I presented in my Werner LCD Report remains informative for estimating per Note damages as they do capture the Company-specific effects of the corrective disclosure on the FXCM Notes.<sup>46</sup>

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<sup>44</sup> Report and Recommendation to the Honorable Ronnie Abrams, dated March 18, 2021.

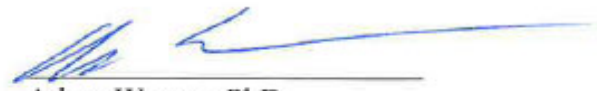
<sup>45</sup> Hendershott LCD Rebuttal, ¶82.

<sup>46</sup> "As discussed above, neither I nor Dr. Hendershott have identified any other new, Company-specific confounding information to which the change in FXCM Notes price could be attributed.

**IV. LIMITING FACTORS AND OTHER ASSUMPTIONS**

34. My analyses and opinions are based on the information available as of the date of this report. Should any additional data or information become available subsequent to the submission of this report, I reserve the right to supplement or amend this report.

Dated: July 12, 2021



Adam Werner, PhD  
Affiliated Expert,  
Crowninshield Financial Research

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

**EDUCATION**

1998            Northwestern University, Kellogg Graduate School of Management  
                  Ph.D. in Finance

1992            Oberlin College  
                  B.A. in Economics

**TEACHING EXPERIENCE**

2014 – Present        Cal Poly San Luis Obispo  
                             Orfalea College of Business  
                             San Luis Obispo, CA  
                             Lecturer in Economics

**BUSINESS EXPERIENCE**

2018 – Present        Pismo Beach Planning Commission

2015 – Present        Crowninshield Financial Research

2009 – 2015            Gnarus Advisors/Berkeley Economic Consulting

2008 – 2009            LitiNomics

2004 – 2008            CRA International

2000 – 2003            National Economic Research Associates, Inc.

1998 – 2000            Cornerstone Research

1992 – 1993            Federal Reserve Bank

**PAPERS AND PUBLICATIONS**

“The Impact of Underwriter Reputation on Equity Offering: An Empirical Study.”  
Thesis, 1999.

“The Long-Run Performance of Underwriters and its Impact on Seasoned Equity  
Offerings.” 1999.

“Dynamic Measures of Underwriter Reputation: A Study of IPO’s.” 1999.

“CAFE Economics: A Note on the Limits and Effectiveness of Fuel Economy  
Regulation.” With Stephen Sheppard, 1992.

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

“Validation of Aggregate Damage Estimates in Securities Class Actions.” with Narinder Walia, Law360, 2021.

“Trading Models Underestimate Securities Class Damages.” with Narinder Walia, Law360, 2019.

“More ‘Dark Pools’ Deepen Litigation Issues.” Law360, 2013.

“Recent Trends in Securities Class Action Litigation: Will Enron and Sarbanes-Oxley Change the Tides.” with Elaine Buckberg, Todd Foster and Ronald Miller, 2003.

“The Effects of the PSLRA and Subsequent Events on Securities Litigation.” With Fred Dunbar and Todd Foster, prepared for the New York City Bar Association, 2003.

“The Energy Tax: Who Pays?” joint with Mark Schweitzer, in Federal Reserve Bank of Cleveland’s Economic Commentary, 1993.

**PRESENTATIONS**

“Cause or Effect: Are Settlement Statistics Driving Down Settlements?” Presentation to Robbins Geller Rudman & Dowd, LLP in San Diego, CA on October 10, 2013, Wolf Popper, LLP in New York, NY on September 18, 2013, Abraham, Fruchter & Twersky, LLP in New York, NY on September 17, 2013, Robbins Geller Rudman & Dowd, LLP in Melville, NY on September 11, 2013, Entwistle & Cappucci, LLP in New York, NY on September 10, 2013, and Faruqi & Faruqi, LLP in New York, NY on September 10, 2013.

“The Economics of Securities Litigation.” Sidley & Austin in Los Angeles, CA on March 14, 2007.

“The Global Cost of Capital.” Panel discussion on valuing assets in foreign countries at the University of Texas School of Law VALCON conference in Las Vegas on February 8, 2007.

“Economic Damages in Securities Fraud Matters.” NERA Luncheon Seminars with Alan Cox given at the Fifth Avenue Suites Hotel in Portland, OR on November 19, 2002 and at the W Hotel in Seattle, WA on November 20, 2002.

“Shareholder Class Actions: Calculation of Damages.” Presentation to Skadden, Arps, Slate, Meagher & Flom, LLP in San Francisco, CA on October 30, 2002, Marsh FINPRO in San Francisco, CA on September 18, 2002, Marsh Risk & Insurance Services in San Diego, CA on September 17, 2002 and Marsh FINPRO in Los Angeles, CA on September 13, 2002.

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

“Capital Formation: Class Action Litigation and Prevention.” Speech and panel discussion focusing on securities class action litigation, which sometimes arise from initial public offerings and/or market volatility in the aftermarket. Presented at the 2002 CALBIO Summit in San Diego, CA on April 23, 2002.

“Shareholder Class Actions after the NASDAQ Bubble.” Speech given to the Securities Litigation Sub-Committee of the Colorado Bar Association at Holland & Hart, LLP in Denver, CO on April 17, 2002.

“Trends in Litigation: How Claims and Losses Are Valued.” Speech at the American Bankers Association Insurance Risk Management Annual Conference in San Diego, CA on February 4, 2002.

“Recent Trends in Securities Litigation.” “Basic Economic Analysis in Securities Class Action” and “Challenging the Efficient Market Assumption in Securities Class Action Matters.” presented to Cooley Godward in San Diego, CA on November 28, 2001. “Recent Trends in Securities Litigation.” presentation with Marcia Mayer given at Howard, Rice, Nemerovski, Canady, Falk & Rabkin in San Francisco, CA on November 27, 2001.

“Recent Trends in Securities Litigation.” presentation given to Marsh USA in Denver, CO on November 8, 2001, and Thelen, Reid & Priest in Los Angeles, CA on November 6, 2001.

“Financial Economics in Litigation.” speech presented to Simpson, Thacher & Bartlett in Palo Alto, CA on July 31, 2001, Baker & McKenzie in San Diego, CA on July 18, 2001, Brobeck, Phleger & Harrison in San Francisco, CA on June 25, 2001 and to Latham & Watkins in San Francisco, CA on June 26, 2001.

“Economic Analysis in Securities Fraud Cases.” Speech with Alan Cox delivered to Morrison & Forester, San Francisco, CA on July 25, 2001.

“Recent Trends: Shareholder Class Actions Five Years After the PSLRA.” speech presented to Shearman & Sterling in San Francisco, CA on May 23, 2001, O’Melveny & Myers in Los Angeles, CA on May 30, 2001 and Gray, Cary, Ware & Freidenrich in San Diego, CA on June 6, 2001.

**EXPERT REPORTS AND TESTIMONY**

*In re Global Brokerage, Inc. f/k/a/ FXCM Inc.* Issued a report (2020), a rebuttal report (2020), provided deposition testimony (2020) and testified (2020) on market efficiency in a securities class action. Issued a report (2021) and provided deposition testimony (2021) on loss causation and damages (U.S.D.C. Southern District of New York).



**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

*George Barney, et al. v. Nova Lifestyle, Inc., et al.* Issued a report on market efficiency is a securities class action (U.S.D.C. Central District of California, 2021).

*Peter Voulgaris, et al. v. Array Biopharma Inc., et al.* Issued a report (2021) and provided deposition testimony (2021) on market efficiency in a securities class action (U.S.D.C. District of Colorado).

*In re Innocoll Holdings Public Limited Company Securities Litigation.* Issued a report (2020), a rebuttal report (2020) and provided deposition testimony (2020) on market efficiency in a securities class action (U.S.D.C. Eastern District of Pennsylvania).

*Michael Tietz, et al. v. Crytobloc Technologies Corp., et al.* Issued a report on price impact in a securities class action (Supreme Court of British Columbia, 2020).

*In re Horsehead Holding Corp. Securities Litigation.* Issues a report (2020) and provided deposition testimony (2020) on market efficiency in a securities class action (U.S.D.C. District of Delaware).

*Bing Li, et al. v. Aeterna Zentaris, Inc., et al.* Issued a declaration (2016), a report (2017), and provided deposition testimony (2017) on market efficiency in a securities class action. Issued a declaration (2019) a reply report (2019), and provided deposition testimony (2020) on loss causation and damages (U.S.D.C. District of New Jersey).

*In re Patriot National Inc. Securities Litigation.* Issued a declaration (2019) and a supplemental declaration (2019) on damages in a securities class action (U.S.D.C. Southern District of New York).

*Hamza Ramzan, et al. v. GDS Holdings Limited, et al.* Issued a declaration on NASDAQ microstructure in a securities class action (U.S.D.C. Eastern District of Texas, Marshall Division, 2019).

*Ivan Nibur, et al. v. SandRidge Mississippian Trust I, et al.* Issued a declaration (2018), a reply declaration (2018), a supplemental reply declaration (2018), and provided deposition testimony (2018) on market efficiency in a securities class action. Issued a declaration (2019) a rebuttal declaration (2019), and provided deposition testimony (2019) on loss causation and damages (U.S.D.C. Western District of Oklahoma).

*In Re Insys Therapeutics, Inc. Securities Litigation.* Issued a report on market efficiency in a securities class action (U.S.D.C. Southern District of New York, 2019).

*In Re Spectrum Pharmaceuticals, Inc. Securities Litigation.* Issued a declaration (2019) and provided deposition testimony (2019) on market efficiency in a securities class action (U.S.D.C. District of Nevada).

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

*Amanda Beezley et al. v. Fenix Parts, Inc., et al.* Issued a declaration on market efficiency in a securities class action (U.S.D.C. Northern District of Illinois, Eastern Division, 2019).

*Wayne Mucha, et al. v. Volkswagen Aktiengesellschaft, et al.* Issued a declaration regarding benefits to firms that have ADRs listed in a securities class action (U.S.D.C. Eastern District of New York, 2018).

*Michael Desta, et al. v. Wins Finance Holdings Inc., et al.* Issued a declaration (2018) and provided deposition testimony (2018) on market efficiency in a securities class action (U.S.D.C. Central District of California).

*Andrew Meyer, et al. v. Concordia International Corp., et al.* Issued a declaration (2018), a reply declaration (2018), and provided deposition testimony (2018) on market efficiency in a securities class action. Issued a declaration (2018), a reply declaration (2018), and provided deposition testimony (2018) on loss causation and damages (U.S.D.C. Southern District of New York).

*In re: K12 Securities Litigation.* Issued a declaration (2018) and provided deposition testimony (2018) on market efficiency in a securities class action (U.S.D.C. Northern District of California).

*Robert Colman, et al. v. Theranos, Inc., et al.* Issued a declaration on damage methodology and price impact in a securities class action (U.S.D.C. Northern District of California, San Jose Division, 2018).

*In re: CytRx Corporation Securities Litigation.* Issued a declaration (2017) and provided deposition testimony (2018) regarding market efficiency in a securities class action (U.S.D.C. Central District of California).

*Lord Abbett Affiliated Fund, Inc., et al. v. American International Group, Inc.* Issued a report regarding market efficiency, loss causation, and damages in a securities case (U.S.D.C. Southern District of New York, 2017).

*Xiaolin Chi, et al. v. Qiao Xing Universal Resources, Inc., et al.* Issued a report on damages in a securities class action (District Court of the Virgin Islands, St. Croix Division, 2017).

*John Hosey v. Twitter, Inc., et al.* Issued a declaration (2017) and provided deposition testimony (2017) regarding rebuttal to Defendants' Motion for Summary Judgement in a securities class action (Superior Court of the State of California, County of San Mateo).

*Gwyn R. Hartman Revocable Living Trust v. Southern Michigan Bancorp, Inc. et al.* Issued a report on damages arising from alleged exclusions in a proxy solicitation (U.S.D.C. Western District of Michigan, 2017).

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

*Fred Kelsey, et al. v. Textura Corporation, et al.* Issued a declaration (2017) and provided deposition testimony (2017) on market efficiency in a securities class action (U.S.D.C. Northern District of Illinois).

*Dave Carlton, et al. v. Fred Cannon.* Issued a declaration on market efficiency in a securities class action (U.S.D.C. Southern District of Texas, Houston Division, 2016).

*James Middlemiss v. Penn West Petroleum LTD., et al.* Issued a report on damages in a securities class action (Superior Court of Justice Ontario, Canada, 2016).

*David Loritz, et al. v. Exide Technologies, et al.* Issued a report on damages and loss causation in a securities class action (U.S.D.C. Central District of California, 2015)

*Manishkumar Khunt, et al. v. Alibaba Group Holding Limited, et al.* Issued a declaration on potential investor damages in a securities class action (U.S.D.C. Southern District of New York, 2015).

*Biotechnology Value Fund, L.P. et al. v. Celera Corporation et al.* Issued a report (2014), a reply report (2014), a supplemental report (2014), and provided deposition testimony (2014) on damages arising from a merger (U.S.D.C. Northern District of California).

*In re: Hi-Crush Partners L.P. Securities Litigation.* Issued a declaration (2014), a supplemental declaration (2014), and provided deposition testimony (2014) regarding market efficiency in a securities class action (U.S.D.C. Southern District of New York).

*Ian Mausner v. MarketByte LLC, et al.* Issued a declaration about investment advisor incentives and liquidity needs in a securities class action (U.S.D.C. Southern District of California, 2014).

*Artes Medical, Inc. v. Lemperle et al.* Provided deposition testimony on behalf of defendants about alleged damages caused by a proxy contest (Superior Court of the State of California, County of San Diego, Central District, 2013).

*In re: Ebix Inc. Securities Litigation.* Issued a declaration (2012) and provided deposition testimony (2013) regarding market efficiency in a securities class action (U.S.D.C. Northern District of Georgia, Atlanta Division).

*Erik Poole and William Rhody v. Alange Energy Corp., et al.* Issued a report (2012) and a reply report (2013) on market efficiency and damages in a securities class action (Superior Court of Justice Ontario, Canada).

*In re: Hecla Mining Securities Litigation.* Issued a declaration on investor losses in a securities class action (U.S.D.C. District of Idaho, 2012).

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

*Mark Henning, et al. v. Orient Paper, Inc. et al.* Issued a declaration (2011), a supplemental declaration (2012) and provided deposition testimony (2012) regarding market efficiency in a securities class action (U.S.D.C. Central District of California).

*Carlos Munoz et al. v. China Expert Technology, Inc., et al.* Issued a declaration (2012), a supplemental declaration (2012) and provided deposition testimony (2012) in a securities class action regarding market efficiency (U.S.D.C. Southern District of New York).

*Theodore Dean, et al. v. China Agritech, Inc., et al.* Issued a declaration (2012), a supplemental declaration (2012) and provided deposition testimony (2012) in a case regarding market efficiency in a securities class action (U.S.D.C. Central District of California).

*Robert Michael Shenk, Derivatively on Behalf of Sirius XM Radio Inc. v. Melvin Alan Karmazin, et al.* Issued an expert report (2011), a supplemental expert report (2012) and provided deposition testimony (2012) in a case involving damages in a shareholder derivative matter (U.S.D.C. Southern District of New York).

*Pathway Investments Pty Ltd and Doystoy Pty Ltd v. National Australia Bank Ltd.* Submitted a report on survey techniques, the efficient market hypothesis and liquidity in a securities class action (Supreme Court of Victoria at Melbourne, Australia, Commercial and Equity Division, Commercial Court, 2012).

*Bruce Simmonds, Robert Grant and Gordon Moore v. Armtec Infrastructure Inc. et al.* Issued a report on market efficiency and damages in a securities class action (Superior Court of Justice Ontario, Canada, 2011).

*In re: BP plc. Securities Litigation.* Issued a declaration regarding damages and materiality in a securities class action (U.S.D.C. Southern District of Texas, Houston Division, 2010).

*In re: Tripath Technology Inc., Debtor.* Issued a report (2009) and provided deposition testimony (2010) regarding damages arising from Directors' and Officers' breach of fiduciary duty in bankruptcy court (U.S.D.C. Northern District of California, San Jose Division).

*David Ainslie and Muriel Marentette v. CV Technologies et al.* Issued a report estimating damages in a securities class action (Superior Court of Justice, Ontario, Canada, 2010).

*Harry Stackhouse, on Behalf of Himself and All Others Similarly Situated v. Toyota Motor Corporation, et al.* Issued a declaration regarding the relationship between Toyota's U.S. stock price and Japanese stock price in a securities class action (U.S.D.C. Central District of California, 2010).

**Exhibit-1**  
**Curriculum Vitae**  
**Adam Werner, Ph.D.**

*Phillip Elliot and William Kormos v. NovaGold Resources Inc., et al.* Issued a declaration in a securities class action regarding trading volume in the U.S. versus Canada. (Superior Court of Justice, Ontario, Canada, 2010).

*International Arbitration between a private equity firm and Chinese biotech company.* Issued a report (2008) and testified (2009) before an International Arbitration Committee regarding the value of a private equity investment.

*Arbitration between Albert Richards and Old Republic Title Insurance.* Deposed regarding estimated damages incurred by plaintiff as a result of a forced sale of Russian securities due to Old Republic's breach of contract (2008).

*Californians United for a Responsible Budget, et al., v. California State Public Works Board, et al.* Issued a report on the cost of issuing revenue bonds to fund California prison expansion (The Superior Court for the State of California, County of Sacramento, 2008).

*Arbitration between Daniel Lyons and Morgan Lyons, and Chinese Hospital Association and Sam English.* Deposed regarding plaintiffs' calculated damages arising from asbestos exposure for plaintiff (2003).

**Exhibit-2**  
**Documents Considered in Addition to those**  
**Cited in My Previous Reports**

**CASE DOCUMENTS**

- Third Amended Consolidated Securities Class Action Complaint, filed April 17, 2020.
- Expert Report of Terrence Hendershott, Ph.D., dated June 10, 2021.
- Videotape Deposition via Zoom of Terrence Hendershott, Ph.D., dated July 8, 2021.

**ACADEMIC AND PROFESSIONAL LITERATURE**

- Cheng, C. S. Agnes et al., “Shareholder Rights, Financial Disclosure and the Cost of Equity Capital,” *Review of Quantitative Finance and Accounting*, 2006.
- Gillet, Roland et al., “Operational Risk and Reputation In The Financial Industry,” *Journal of Banking & Finance*, 2009.
- Gold, Kevin et al., “Federal Securities Acts and Areas of Expert Analysis,” in Chapter 27 of the *Litigation Services Handbook: The Role of the Financial Expert*, 6<sup>th</sup> ed., edited by Roman Weil, Daniel Lentz, and Elizabeth Evans, John Wiley & Sons, Inc., 2017.
- Karpoff, Jonathan et al. “The Cost to Firms of Cooking the Books,” *Journal of Financial and Quantitative Analysis*, 2008.
- Kothari, S.P. et al., “The Effect of Disclosures by Management, Analysts, and Business Press on Cost of Capital, Return Volatility, and Analyst Forecasts: A Study Using Content Analysis” by *The Accounting Review*, 2009.
- MacKinlay, A. Craig, “Event Studies in Economics and Finance,” *Journal of Economic Literature*, March 1997.
- Palmrose, Zoe-Vonna et al., “Determinants of Market Reactions to Restatement Announcements,” *Journal of Accounting & Economics*, 2004.

**OTHER**

- Any other documents and data cited in the report.

**Exhibit-3**  
**Analysts' Price Targets at Class Period Start**  
**vs. Prior to Corrective Disclosure**

	<b>Analyst Firm</b>	<b>Report Date</b>	<b>Price Target</b>
<b>Class Period Start</b>	Sandler, O'Neill, and Partners	3/15/2012	\$13.00
	Barclays	3/22/2012	\$11.00
	UBS	4/16/2012	\$15.00
	JP Morgan	4/17/2012	\$14.50
	Sandler, O'Neill, and Partners	4/17/2012	\$13.00
	Credit Suisse	5/8/2012	\$12.50
	Deutsche Bank	5/9/2012	\$12.00
	Deutsche Bank	5/9/2012	\$11.00
	JP Morgan	5/9/2012	\$14.50
	UBS	5/9/2012	\$15.00
	Sandler, O'Neill, and Partners	5/9/2012	\$13.00
	Sandler, O'Neill, and Partners	5/9/2012	\$12.00
	Barclays	5/10/2012	\$10.00
	UBS	6/7/2012	\$15.00
	Credit Suisse	6/7/2012	\$12.50
	Barclays	6/8/2012	\$10.00
	Sandler, O'Neill, and Partners	6/12/2012	\$12.50
	<b>Average:</b>		<b>\$12.74</b>
<b>Pre-Disclosure</b>	Sandler, O'Neill, and Partners	1/20/2015	\$1.75
	Barclays	1/26/2015	\$1.00
	Barclays	1/28/2015	\$1.00
	Barclays	2/11/2015	\$1.00
	Barclays	3/13/2015	\$1.00
	Credit Suisse	3/13/2015	\$2.60
	Sandler, O'Neill, and Partners	3/27/2015	\$1.75
	Credit Suisse	5/1/2015	\$2.00
	Barclays	5/11/2015	\$1.00
	Credit Suisse	5/27/2015	\$1.25
	<b>Average:</b>		<b>\$1.44</b>

Source: Analyst Reports from Thomson Eikon